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THE

# PSYCHOLOGICAL BULLETIN

## HUMANISM.[1]

A reviewer of *Humanism* has an unusually hard task set him and one whose accomplishment he is bound to view with dissatisfaction. For he must either sacrifice its rich variety of concrete content to a statement of a few generalized features; or he must, in behalf of a scheduling and summarizing of detached essays on a multitude of different subjects—as different as 'Mephistopheles,' 'Non-Euclidean Geometry,' 'Darwinism and Design,' 'Lotze's Monism,' etc.—forego a consideration of what gives the book a claim to be a representative of a single philosophic point of view, the herald of a philosophic system which, if not so new nor yet so unformed in the ages from Plato to Hegel as Mr. Schiller seems to suppose, yet issues in fresh, clarion tones from his trumpet. And in this dilemma the present reviewer elects to stand with the Schiller of the title-page and the preface rather than with the Schiller who in the dozen years between 1892 and 1902 wrote fifteen interesting and most suggestive, but somewhat detached, essays. In a word, it is the general tone and temper of the book that seem to me significant, and to which I shall devote myself, even at the expense of inevitable passing over of pages of fresh and pregnant philosophic construction and criticism — even at the cost (to which it is somewhat harder to reconcile myself) of not recording my almost total dissent from the positions taken in the essays entitled 'Activity and Substance' and 'Philosophy and the Scientific Investigation of a Future Life.'

First, then, as to Humanism itself — not the name, but the fact. What is that attitude which as Mr. Schiller naïvely says — for as even Homer nods, so a sense of humor occasionally fails even Mr. Schiller — he 'knows to be habitual in William James and in myself, and which seems to be sporadic and inchoate in many others'? The answer is

[1] *Humanism. Philosophical Essays.* F. C. S. SCHILLER, M.A. London, Macmillan & Co. 1903.

that as a philosophic standpoint and method it "takes Man for granted as he stands and the world of man's experience as it has come to seem to him. This is only the starting point, from which we can proceed in every direction, and to which we must return, enriched and with enhanced powers over our experiences from all the journeyings of Science" (pp. xvii–xviii). Or again, Humanism is "content to take human experience as the clue to the world of human experience, content to take Man on his own merits. * * * To remember that Man is the measure of all things, *i. e.*, of his whole experience world, and that if our standard measure be proved false all our measurements are vitiated; to remember that Man is the maker of the sciences which subserve his human purposes; to remember that an ultimate philosophy which analyzes us away is thereby merely exhibiting its failure to achieve its purpose, * * * is the real root of Humanism" (pp. xix and xx).

Humanism thus conceived seems to me a method not only sane and sensible, but inevitable almost to the point of the truistic, and it required the chorus of objections in which a dozen critics have joined in the last few months to persuade me that there was, as a standpoint, as a method, anything particularly novel, not to say revolutionary, involved. But the critics with one voice have acclaimed this point of view as subjective, irretrievably so, as individualistic, as solipsistic. When Mr. Schiller remarks that if Man as the standard measure be proved false all further measurements are thereby vitiated, he has, to my mind, answered the critics by anticipation. The standpoint cannot fairly be labelled as per the above, unless the human nature which is taken as furnishing the key and clue to human experience be purely subjective, be enclosed within an exclusively psychical individuality. And if such be the case, it is clearly impossible for this individual to transcend these limits in his philosophizing any more than in any other of his industries or pursuits. The critic has indeed, in such case, the right to condemn 'Humanism' as sceptical and solipsistic in tendency; but his right is earned and maintained only at the cost of putting his own critique and his own philosophizing in the same boat. He has pursued the expensive process of fatally disparaging the organ and medium of all science and philosophy in order to put in an unfavorable light a particular method which he does not like.

But surely a thinker may freely avow that he is going to take Man as he finds him, rather than as he might fix him up to be, and is going frankly to recognize that Man so taken is the measure of experience, without thereby having committed himself to 'finding' Man made of

stubble blown together on a quicksand. Even the Scriptures give us the right to think of Man as composed of a substance as tough, even if as plastic, as clay. It is not clear to me why it is not as open to Schiller, to James, to myself (it is the critics who embolden me to this temerity), as to others to make use of whatever universal and objective factors enter into the human make-up. But as for building upon a hypothetic universality which exists not in everyday concrete human nature, as observation and description, history and analysis reveal that human nature; which exists only in projections which are the special monopoly of philosophy, and which turn out to be projected by a humanity which in its immediately present constitution is only subjective and individualistic — that is a flight which I am willing to deny myself. Meantime there are those who do not share in these pessimistic views of human nature, even 'as it is,' those who take a more generous view not merely of its possibilities, but of its actualities; who, indeed, are loath to speak of its possibilities save as there is found for them a basis in the actualities.

Humanism necessarily assumes a sympathetic, not an antagonistic attitude towards all the natural sciences. This is not because it reduces philosophy to naturalism, but because it finds it can draw freely upon the methods and results of the sciences in forming its conception of Man as the Measure, or in applying this measure to this or that realm of experience. It is no surprise accordingly to find where Professor Schiller stands as regards the contemporary *crux:* the relation of philosophy to psychology. At many points, most notably throughout the important essay on Truth, he shows himself a thorough disbeliever in that modern revival of the old time heresy of two-fold truth, which holds that something may be true for psychology, and false or else meaningless for logic (and *vice versa*); while he insists upon the renascence of logic which is bound to come when thinking, when truth seeking and testing, is considered in its concrete implications with the emotive and voluntary life. And when the critics object that we have here confusion of merely descriptive science with normative and evaluative science, they make their point (as in the case already noticed) by first ignoring the real position of those whom they criticize, and then by attributing to them the critic's own beliefs.

For the contention of the humanist is precisely the unreality of the separation from each other of describable facts and normative values. The humanist really believes that values *are* normal, even to the extent of being current in life itself. Hence, aims, ideals, standards, are a part of the facts which psychology itself has to reckon with.

The factual continuity of biological function and psychological operation with logical norm is one of the most significant things to be noted and described. Similarly the humanist, while feeling the social sciences to be especially near to him, will not balk at any method or datum of the physical sciences, because the physical sciences help one in forming a right conception of what Man the Measure is, and, as Mr. Schiller puts it, of how Man measures, and by what devices one may make concordant his measures with those of his fellow-man. The humanist is thus able to transfer the conception of the unity of all knowledge, which to the epistemological idealist is a barren postulate of an ultimate but unrealizable achievement, into a working postulate of present method. It becomes the idea of the *continuity* of experience; the only idea, so far as I can see, which saves us from the mutually sterilized, and hence sterile, nothing of the natural and the ideal in which the transcendentalist indulges, and from the wholesale merging of the spiritual in the natural which is the materalist's objective.

In the second place, characteristic of Mr. Schiller's work is a worthy and adequate recognition of the significance of experience in its *immediate* aspect. Were not the term sure to be misconstrued as one of denial (that is, of the mediate as real), humanism as expounded by Mr. Schiller might almost be termed *Immediatism*. This phase of his thought is so well wrought out in what seems to me the ablest essay in his volume, that 'On Preserving Appearances,' that I need hardly do more than refer to it. "The only reality we can start with is our own personal, immediate experience. We may lay it down therefore that *all immediate experience is as such real, and that no ultimate reality can be reached except from this basis, and upon the stimulation of such immediate experience.* * * * The distinction of 'appearance and reality' is *not* one which transcends our experience, but one which arises in it. It does *not* constitute a relation between our world and another, nor tempt us to an impossible excursion into a realm inexorably reserved for the supreme delectation of the Absolute" (p. 192). And the same may be said of course of the distinction between the absolute and the relative, the finite and the infinite, the real and the ideal, subject and object, and all the other antitheses which are dear to philosophy's heart. They all arise *within* immediate experience. And to quote further from Mr. Schiller: "The process of reaching them is everywhere the same; we experiment with notions which are suggested to our intelligence by our immediate experience, until we hit upon one which seems to be serviceable for

some purpose which engrosses us. * * * They remain on the same plane of interpretation, and all alike are attempts, more or less successful, to supplement some unsatisfactory feature or other in our primary experience" (pp. 193–194). Here I shall simply add what indeed Mr. Schiller does not deny, but hardly seems to realize the full force of: the necesity of the *genetic* method to put before us (1) the *meaning* of philosophic categories and philosophic antitheses, in terms of their *origin* in typical crises or junctures of immediate experience, and (2) the *validity* of such conceptions in terms of their relative success witnessed in their further career in 'supplementing the unsatisfactory features' which called them out. It is this methodological feature which, so far as I understand the matter, specially characterizes the recent *Studies in Logical Theory*, rather than a broader Humanism on one side, or a narrower Pragmatism on the other.

In the third place, a feature which used to be called Voluntarism, which is now termed Pragmatism, and which personally I should, for reasons which I shall not go into, prefer to call Instrumentalism, is characteristic of Mr. Schiller's thought. In his own words: It is the "thorough recognition that the purposive character of mental life generally must influence and pervade also our most remotely cognitive activities. * * * It is a systematic protest against the practice of ignoring in our theories of Thought and Reality the purposiveness of all our actual thinking, and the relation of all our actual realities to the ends of our practical life. It is an assertion of the sway of human valuations over every region of our experience, and a denial that such valuation can validly be eliminated from the contemplation of any reality that we know" (p. 8). Or, as he develops one phase of it in a footnote which contains some of the most pregnant thinking of the entire volume (pp. 11 and 12), it is the recognition that knowing is itself a kind of action, which like any mode of action modifies the world of reality in which it occurs, the objects at which it is directed. In my judgment the volume would be noteworthy if it advanced only this one idea: that it is sheer superstition, crude survival, that knowing simply reveals a nature which Reality already has, not affecting or transforming or farther determining it in any way. "The determinate nature of reality does *not* subsist 'outside' or 'beyond' the process of knowing it," and all our knowing is a mode of action in which the known reality gains more specifically determined character — this is an Idealism which is experimental, not merely epistemological, and which is ethical, not merely intellectualistic, and which, so far as I can see, alone makes possible a metaphysic which in truth and not merely in word acknowledges Evolution.

This is little enough to say of Mr. Schiller's Pragmatism. But it ought to be enough to suggest, (1) that it is *one* feature of Mr. Schiller's thought, not the 'whole thing.' It is an important feature, indeed; but it gains its especial prominence just now because of the persistent ignoring in current epistemology of psychological, biological and sociological teachings as to the intimate connections of thought processes with larger emotive and volitional issues. I confess to surprise that its critics have not recognized that if this phase of the new philosophic movement is at times exaggerated beyond its due import, this exaggeration is simply a natural reflex of the prevalent minimizing of it. In any case, there is no excuse for the view which identifies this philosophic movement, in head and in members, with just and only pragmatism. Mr. James, who surely ought to know since he gave the term its present currency, has used it only to express a certain method of testing and evaluating philosophic conceptions. He has never designated the *substance* of his philosophy (as distinct from one aspect of its method) anything but Radical, or Pluralistic, Empiricism. The category of purpose is *a* category, not the only one, and it is a category which, like any other, has its own specific conditions and function within experience; it is not *a priori*, and externally determinative.

(2) There is nothing in pragmatism which commits it to a narrow or offensively practical conception of 'Practice.' I would not say that there are no serious problems involved in getting a sufficiently broad and comprehensive conception of Practice, of conduct: to define Practice is no easy matter. I would not say that Mr. Schiller, in particular, has not moments in which he gives coloring to the claims of the critics that knowledge is relegated to a mere utilitarian device. But how unnecessary this is appears from the scope of his own definition: "The purposive character of mental character must influence and pervade also our most remotely cognitive activities."

(3) And the sapient remark of almost all the critics that theory is itself a form of action, that knowing too is a mode of practice, instead of standing as a charge or accusation, only repeats one of the most cherished convictions of pragmatism. The only difference is that pragmatism in holding to knowledge, to intellectual operations as a mode of activity, does not believe in the reality of an activity which is confined merely to mirroring, to re-presenting, a preëxisting reality. It believes that activity really effects, really counts, really constructs; and that in so doing, it actually modifies Reality, entering into its own inherent evolution. And this by its inherent and primary, not by a derived and accidental law.

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# PSYCHOLOGICAL LITERATURE.

## ÆSTHETICS.

*Die Geschmackvolle als Besonderheit des Schönen.* C. M. Giessler, Zeitschr. für Psychologie, XXXIV., 81–110.

The author of this paper attempts to distinguish the tasteful from other categories of the beautiful, to show its relation to sensual taste, and to find for it a general characterization.

The distinction of the tasteful from other forms of the beautiful is three-fold. First, it deals only with elements that are pleasing, while the beautiful in general may include elements that are not in themselves pleasing. Poetry, painting, plastic art and music, for example, may deal with the ugly, the sad, or the bad, and yet be beautiful. The tasteful, however, deals only with artificial objects, and not with the beauties and forces of nature; hence it must be distinguished from the sensuously beautiful on this side, as from art proper on the other. Second, in the other types of the beautiful a single group of elements predominates, everything else being sunk in them. In the tasteful there is no such concentration, but a large number of elements work equally in producing the result. Prominence of parts is a desideratum in the tasteful, and we find various schemes of modifying form, or diversifying color, or adding ornaments, to emphasize various details of the object. The added ornaments are for the purpose of bringing in new elements to mix with those naturally in the object, and thus enrich the complex. Third, in other categories of the beautiful actual emotions are roused, the depth to which the individual is absorbed in them depending on the form of the art; in architecture it is least, *i. e.*, the emotional element is most restricted. In the tasteful the emotional is altogether absent, or rather is restricted to feeling tone, under which the esthetic sympathy with the cognized elements occurs.

The obvious relations between the tasteful and sensual taste are likewise three-fold. First, there is an analogy between the stimuli of taste sensations and the tasteful object, which is most marked in regard to color combinations, these being the 'kernel' of the tasteful. We have the tastelessness of plain colors corresponding to the flatness of unseasoned food; essential relationships of likeness in color schemes

corresponding to gravy with meat dishes and sweet sauce with sweet dishes; contrasts and sequence effects in colors as in taste stimuli. Second, there is an analogy in the availability of foods and tasteful objects: taste is pleasingly stimulated ordinarily by substances which have a certain food value and which are soluble, and similarly esthetic taste depends on the object having a certain spiritual food value through its associations, and on its separability into its elements through discrimination. Third, there is an associative relation between taste sensations and the esthetically tasteful. Garnishing of victuals rouses appetite and heightens enjoyment; fresh lawns, through association with salads, rouse salivary ideas. Tasteful metal dishes are associated with metallic taste which we get from copper, steel and iron directly, and which gold and silver rouse by association through the touch and temperature sensations in the mouth.

The fundamental characteristic of the tasteful is that it depends on an idealized touch feeling. This accounts for the peculiarities of quantity and quality of elements and intensity of esthetic sympathy mentioned above, and for the application of the name, since the interior of the mouth is the seat of the finest touch discrimination, and taste sensations are always connected with these tactual stimulations. The definition in which the author sums up the principle of taste is as follows: 'The esthetic sympathy in the tasteful consists in a fantastic handling of the corresponding substratum in the light of the ideal feeling tone excited by it.'

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## PHILOSOPHY.

*Scottish Philosophy in its National Development.* HENRY LAURIE. Glasgow, James Maclehose and Sons, 1902. Pp. 337.

Professor Laurie was justified in thinking that a concise statement of the course of philosophy in Scotland would be acceptable to many readers. Monographs upon individual Scottish thinkers — Hutcheson, Hume, Adam Smith, Reid, Hamilton — are not lacking. Scottish philosophy as a whole was treated by the late Dr. McCosh with zeal and thoroughness. There is room, however, for a brief presentation, from a present day point of view, of the contribution of Scotland to philosophic thought. Of the fifty or more names included in Dr. McCosh's plan, less than a third are retained in this volume, and unimportant details are neglected. Professor Laurie has produced a readable and interesting book, in which narrative, exposition and criticism

are judiciously combined. A significant addition is made to Dr. McCosh's list in the chapter on Ferrier, whose speculative independence and ingenuity prefigures the change which the national tradition has undergone during recent years.

The reason for a separate chapter on 'Æsthetic Theories' is not quite apparent. The discussion of recent developments of thought is meager. This is doubtless because of the restraint which one feels in speaking of contemporaries; yet it would seem possible to furnish an account of the work of Bain, Fraser, Stirling, the Cairds, etc., without danger of injustice or indelicacy. If any general criticism were to be made, it would perhaps be that the treatment lacks perspective and incisiveness; the reader is furnished with a series of sketches rather than with a historic evolution such as the title seems to promise. Professor Pringle Pattison's *Scottish Philosophy* may be advantageously used as complementary to this volume.

*Descartes, Spinoza and the New Philosophy.* JAMES IVERACH, D.D. The World's Epoch-Makers Series. New York, Charles Scribner's Sons, 1904. Pp. 242.

This is a small book upon a large subject. Within the compass of a dozen short chapters, Professor Iverach undertakes to expound, in their relation to ancient and to mediæval thought, and to modern problems, the systems both of Descartes and of Spinoza. One cannot fail to agree with the author's opinion that 'each of the great thinkers treated in the book might have fitly claimed as large a space as that allotted to the two.'

Professor Iverach writes with animation and clearness, and enables the reader to perceive the reasons for the extraordinary influence of Descartes upon subsequent philosophy. The profound questions which the Cartesian speculation raised, and bequeathed to the future for settlement, are defined with discrimination. The latter part of the volume is less successful. The treatment of Spinoza is so hurried as to be distinctly unsatisfactory. Instead of attempting to trace the development of thought in the *De Intellectus Emendatione* and the *Cogitatio Metaphysica*, it would have been better to devote the limited space to the *Ethics* alone.

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## GENIUS.

*Le Moderne Teorie del Genio.* R. NAZZARI. Pp. viii + 170. Rome, 1904.

Part I. refutes the alleged epileptoid degeneration of the poet Leopardi. Part II., Chapter 1, is a further refutation of the views of the Lombrosians. It has already appeared as a magazine article and is a highly succesful attempt to rescue great men from the Lombrosian madhouse.

In the latest edition of his *Man of Genius* Lombroso sticks to his first principle that genius is due to a cortical irritation of an epileptoid nature, which transforms itself into a psychic epilepsy (p. 256). He defines epilepsy as the effect of a cortical scarification originating from a localized irritation upon a degenerative basis. This definition is safe because so figurative, but Lombroso lays himself open to attack by asserting that recent investigations show that the epileptic attack *with consciousness* is like that which is often noted in genius at the moment of creative activity. It is hard to see how the Lombrosians reconcile attacks even of *petit mal* with the development of the higher faculties, yet Venturi presents the suggestive theory that epilepsy may be a sort of mental reserve force, in which the attack acts as a safety valve. This does not identify epilepsy with genius but makes it favorable to the formation and expression of the products of genius.

In his historic examples Lombroso is weak. Thus, reasoning from an obscure passage in Plutarch he makes Julius Cæsar set out for the conquest of Gaul because thereby he could escape the epileptic malady which became aggravated by idleness. And Dante is made an epileptic because of the frequent references to his falling senseless to the ground in his poems. But beside these inaccuracies and erroneous interpretations there are logical errors. Genius and folly are transformed into genius and epilepsy, therefore, if genius and insanity are cause and effect any fool has traces of immortality. Such absurdities arise because Lombroso exaggerates the abnormalities of his cases and because he fails to distinguish between degeneration of body and of mind. He has not sufficiently considered the biological principles of Darwin and Spencer, viz., that degeneration of certain organs does not necessarily imply the involution of the entire organism, but only its modification. There are here two possibilities: degeneration in correlation with genius may render it unadapted to environment, but the harmony of the total organism is not disturbed in its vital elements because of the abnormal development of neural tissues of higher

functional worth, nor because of the consequent atrophy of the other inferior tissues. In either case the phenomenon of genius, considered in itself, cannot be regarded as absolutely degenerative.

Nisbet is now criticised as the most authoritative of the foreign followers of Lombroso. He errs in putting upon the word madness such non-psychiatric meanings as nerve-disease, nerve-disorder, unsoundness. He too is illogical: if the ascendants of a great man die prematurely it is a sign of degeneration in the family; if they are distinguished for longevity it points 'to a more lingering form of nerve-disorder.' Stretched on such a bed of Procrustes the patients cry in vain for mercy. Like Lombroso, Nisbet makes fanciful historical deductions. Emerson denied the existence of the neurotic in Shakespeare, but here the English dramatist and his family are alleged to have all sorts of organic and psychic deficiencies. It is further said that inspiration, which is the essential quality among writers and artists, is nothing but an automatic activity of the brain cells, a phase of which morbid condition finds higher expression in idiocy. This theory of the insanity of genius is immediately undermined by the introduction of rational restraints, for inhibitive representations preclude the automatic nervous activity previously identified with inspiration.

It is in Germany, concludes Nazzari, that one is relieved to find a sensible reaction against the doctrines of Lombroso. Nordau himself is now rebelling against the doctrines of the master, while others are attacking the problem not theoretically but concretely. Thus Möbius in his study *Ueber das Pathologische bei Goethe* gives first a sketch of the historical environment of his subject, then a summary of his ascendants and descendants, and concludes that the man of genius is an evolutionary product. The vigor of genius, compared with that of the ordinary man, has a tinge of mania (einen maniakalischen Anstrich) which is the clinical expression of hyperphasia of certain parts of the brain, yet this pathological factor exists only up to a certain point and does not interfere with the marvelous productions of genius. This rather vague statement is improved upon by Flechsig, who repudiates the idea of the affinity between genius and insanity, by observing that as soon as artists become insane they lose their creative power, the great capacity for attention in one case being in contrast with the extreme exhaustion in the other. What are the anatomical and histological differences between the normal brain and that of the genius cannot be defined. Discarding the presupposition that genius is always united to a particular structure of a special organization of the

brain, Flechsig concludes that the brain of the genius can be distinguished not only by a degree of greater excitability, but is also more richly and finely organized and has special functional worth when precisely centered under the cranial vertex.

Chapter 2 propounds and discusses the various modern theories of genius. In answering the question, What is genius, Nazzari leans to an objective standard; the best criterion is excellence of production, not mere exceptionality (Renda), for this might be a mark of idiocy. The genius is abnormal relatively to the ordinary man, but not of necessity is he abnormal pathologically (Lombroso). Again, genius is not mere synthetic apprehension of truth (Emerson, Bovia), for originality is also a proper mark. Geniuses may be divided into three classes: artistic, scientific, pragmatic (Joly), but here the problem of invention as a factor of human progress is different from that of the inventor as a man (Baldwin). Why does the genius as contrasted with the madman or the criminal awake admiration, have social capacity, stand as representative of an epoch? It is not because he is a mere *sport* or a variation showing lack of adaptation to environment (Nisbet). Is the genius born or made? Does he reform society because it has formed him? (Spencer.) Finding heredity fortuitous some have recourse to panpsychism. Nor is environment a mere negative influence; it is not an obstacle, but a coefficient, a kind of natural selection to suffocate the inferior. Again, as to heredity, the more complex the organism, the more difficult the integral transmission to descendents. Special talents, mental potencies, tend to be attenuated in the offspring in favor of the typical character. There is no inheritance of cerebro-anatomical structure, but only vague tendencies and predispositions, which perhaps have their base in a certain functional orientation of the nerve cells. The public evaluation of genius is objective and social, the criteria of cerebral development are dubious. Yet the development of the higher centers of judgment and will are most important, otherwise all the madmen presented by Nisbet and Lombroso, who were highly endowed with imagination, should have become geniuses. So too should women, in whom predominate imagination and feeling, but their celebrity is measurable more in relation to sex than absolute worth. Co-education in America has shown the inabilbility of women to rise to original conception and the work of synthesis.

Considering the ease and the rapidity of the achievements, it is erroneous to speak of the brain exhaustion of genius, to make epilepsy equivalent to inspiration, to identify nervous with vital force (Nordau). The organism is not a static, but a dynamic unity. Degeneration is

related to genius as sickness to health; a morbid state may even indicate progression, an orientation of psycho-physical energies toward a more complete harmony, a sign of disintegration preparatory to a higher evolution. The pathological factor may act as an excitant in the case of precocity, as a dissolvent in the progeny of genius. The characteristics of the act of inspiration are impulsiveness, intermittence and unconsciousness, but the mechanical, subconscious characteristics are here no more mysterious than in the normal psychology of association, attention and other primitive phenomena. The irresistibleness of inspiration is superficially like the mental explosiveness of the madman and the epileptic, but in them inhibition and self-consciousness are lacking. Not in the mattoid and the paranoic are manifest the laws of psychic resultants (Wundt). Spontaneity, the highest type of genius, is not an infinite capacity for taking pains, but an attitude of finding new combinations: the idea is here not a fixed idea, but a principle of unity in movement. Degenerates may have in common with genius extraordinary mobility and elasticity, they lack the saving sense — good sense. Conversely, certain manifestations of genius are incomprehensible without the reaction of a vast social sympathy; the misunderstood genius is one who has not reached the psychological *optimum*. In the evolution of genius heredity is represented by tradition, rational selection by the critical spirit, spontaneous variations by inventiveness, which last has three factors — intelligence, capacity for work and zeal. The zeal of the genius, the interest in his work, is neither egoistic nor altruistic but disinterested, and it is this absolute disinterestedness which raises the genius to the plane of the hero. (We note some curious misprints on pages 161 and 162 in quotations from Professor Baldwin's works.)

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## PLAY.

*The Psychology of Football.* G. T. W. Patrick. Amer. Journal of Psychol., 1903, XIV., 104–117.

What is the motive which prompts thousands ot men and women to watch, under unfavorable circumstances, a college game of football? is the question Professor Patrick puts in this interesting article. He says it is not due to college rivalry, for other contests such as debates and oratorical contests do not bring together as many hundred. It is not a 'new fad,' for it was played in England during the thirteenth century and the interest in the game has increased since that time.

The Schiller–Spencer 'surplus nervous energy' theory and the Groos 'practice and preparation' theory of play are inadequate for explaining this 'peculiar fascination.' He adopts the 'reversion' theory. This fascination is but an echo from the remote brute-man stage of the race. The ancient life of personal combat is mirrored in all plays. This 'peculiar fascination' is but the persistence of deep-rooted race habits.

Football is more sport than tennis or baseball and such games, because it reverts back to activities more primitive. There is a more complete relapse into latent habits and therefore a more perfect rest of the higher brain centers. It is not a return to savagery. There is a momentary return to the serious manners of ages past in order that in the serious affairs of to-day these manners may be more completely left behind.

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## ANIMAL PSYCHOLOGY.

*The Sense of Hearing in Fishes.* G. H. PARKER. American Naturalist, 1903, XXXVII, 185–204.

The writer mentions the fact that the earlier scientists believed that fishes could hear, but that Kreidl and Lee, after various experiments, decided that fishes do not hear. He then tells of his own experiments with three kinds of fishes: normal ones, fishes which had had the nerves to their ears cut, and fishes whose skin had been made insensitive by cutting the fifth and seventh nerves, the lateral line nerves and the spinal cord. An aquarium was used which had one end replaced by a deal sounding board with a bass viol string of a vibration rate of forty per second stretched on it so that the vibrations were transmitted to the water. The fishes used in each experiment were confined in a glass cage suspended in the middle, the end of the cage towards the sounding board being open except for a wire netting. One hundred experiments were made on each kind of fish, and it was found that the normal fishes responded ninety-six times, the earless fishes eighteen, and the fishes whose skin had been made insensitive ninety-four times, although they had undergone a more severe surgical operation than the others. Fearing that the bass viol string caused some disturbance in the water, the author substituted an electric tuning fork, which did not jar the aquarium. Making the experiments as before, he found that the earless ones never responded, and that the others generally did. From this he concludes that the killifish (*Fundulus heteroclitus*) can

hear, although the same experiments made on the smooth dogfish (*Mustelus canis*) did not give any evidence of hearing.

He calls attention to the probable development of the ear from the lateral line organs, and of the lateral line organs from the skin, and concludes from some other experiments made with fishes whose lateral line organs had been rendered inoperative, that the skin is stimulated by the movement of the water in surface waves and currents, the lateral line organs by a slight inaudible trembling of the whole mass of water, and the ears by molecular vibrations conducted by the water.

He mentions a paper by Tullberg, who says that the ear in fishes is not an organ of equilibration, because fishes whose ears have been disconnected soon learn again to keep their equilibrium. Parker thinks that this is due to the experience of the fishes in judging their position by the eye. He agrees with Tullberg, however, in believing that the labyrinth is in some way connected with the reactions of a fish to a current of water.

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## NEUROLOGICAL.

*A Study of the Conductivity of the Nervous System.* Prof. YUJIRO MOTORA, University of Tokyo, Japan. Amer. Journal of Psychol., Vol. XIV., pp. 329–350.

Many years ago scientists tried to identify the nervous impulse with electricity. But experimental study has shown points of serious disagreement. The next theory was that nervous conduction is the result of some chemical change peculiar to nerve fibers. But the details of this chemical action are not known. The author believes that the field is thus open to propose an hydraulic theory.

He gives an account of five experiments. The apparatus used consists of rubber tubes of different lengths, diameters and elasticities, filled with water, together with such other accessories as are necessary to transmit and register the disturbance of the fluid in the tube. The experiments are carefully done, and although he takes fully into account that the analogies which he finds between nervous conduction and his results, are not conclusive proof, he feels that his hydraulic theory is as serviceable as the chemical or any other theory now given.

The author's expression is: "The hydraulic explanation supposes that nervous conduction is a transmission of a water wave in a protoplasmic tube and that the protoplasmic tube not only helps the trans-

mission by its own elasticity but is excitable at any point by means of a stimulus directly applied to it. The wave is, of course, equally transmitted in both directions. Moreover, this theory does not necessarily require a continuity of the path of conduction." For he has shown by experiment that mere contact of tubes or presence of a watery medium between two tubes is enough to transmit the stimulus. He says further, "If the water wave is to explain nervous conduction, it must be supplemented by the contraction of protoplasm, which forms the tube, to account for excitability."

The phenomena of attention and inhibition he very conveniently explains under the supposition of a protoplasmic tube.

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## ABNORMAL AND PATHOLOGICAL.

*Retroactive Amnesia: Illustrative Cases and Tentative Explanation.* W. H. BURNHAM. American Journal of Psychology, 1903, Commemorative Number, 118–132.

The author opens his paper by defining the classes of amnesia: retrograde and retroactive. The former of the two refers to cases where 'memory is obliterated for a relatively long period preceding the immediate cause of the amnesia.' The latter, usually the result of a shock, 'extends for only a short period, a few minutes or a few hours immediately preceding the incident.'

Then follows a discussion of dissociation as met with in every day life: those frequent occurrences where one loses a name or an idea out of a chain of thought which otherwise remains quite clear. Simple dissociation of this sort is, of course, attributable to some inhibition in the associative continuity. If the inhibitory process can be removed, if the right motive for associating the forgotten factors can be supplied, then the entire sequence of ideas is reproducible.

A case of dissociation verging on the pathological is cited which has to do with a person walking along in a familiar neighborhood absorbed in thought. He suddenly arouses himself to find that he does not recognize his surroundings. The accustomed marks of familiarity, a church and certain houses, do not seem to possess their adjunct of recognition. At length a car comes along and he reads the sign which supplies a verbal idea which is recognized. He boards the car and gets safely away. This points to visual amnesia only. On another occasion the same person was set right by making verbal inquiry. The aural image supplied by the answer proved sufficient to reassociate his thought.

The author does not furnish us here the detailed discussion we might wish for. It is quite thinkable that a person of strong aural type, immersed in a process of thought which makes scant use of visual factors, might suddenly be aroused therefrom to a set of visual presentations which, for lack of aural coördination, fail to bring recognition with them. That first moment of strangeness as he fixes his gaze, perhaps, on some really unfamiliar object — unfamiliar because never before carefully attended to — is doubtless of immense suggestive importance and might be sufficient to direct the attention on to other unfamiliar points, thus inhibiting for some time the appreciation of that totality of visual factors which would bring recognition.

Another case showing the development of a 'secondary consciousness' is then cited, together with an account of the process of re-associating the two 'personalities' by means of hypnotism.

The author concludes that 'the one distinguishing characteristic of cases of dissociation is that ideas forgotten are potentially related to consciousness, directly, perhaps, to a secondary or subliminal consciousness, indirectly to the dominant consciousness.' This can mean nothing more than the now generally accepted opinion that memory refers to the peculiar state of an organism after it has been stimulated. 'Ideas forgotten' in this sense means merely that the adequate motive for bringing about a re-innervation of the particular tract needed is not present. Memory is never conscious, but simply a latent state of the organism. The reproductions or ideas which result from re-stimulation of the nervous tracts introduce consciousness. Without such a re-stimulation — *i. e.*, usually, the presentation of a motive which starts an innervation of the tract and results in a reproduction of the ideas wished for — it seems useless to speak of such a very indefinite thing as 'secondary or subliminal consciousness' in this connection. Dissociation does not mean a loss of memory in the true sense of forgetfulness, a fading away of the impressions on the organism, but rather an amnesia due to the lack of an adequate motive for reproduction.

Retrograde amnesia is next considered. Under this class the author refers cases where the 'ideas of a certain modality (as in aphasia) or all those relating to a considerable period of the patient's life are obliterated, and for a relatively long period, at least, cannot be revived by psychological methods.' Two cases are cited: one of amnesia brought on by epilepsy and extending over a period of 260 days preceding the epileptic paroxysm; the other referring to an amnesia brought on by excessive mental work and extending over the

shorter period of about a month. No discussion as to causes is appended, but it is understood that these cases have to do with pathological conditions. The discussion of retroactive amnesia is more full. In this class the amnesias, as stated, are slight with a retroactive character and usually attend a shock of some sort. Ribot is quoted as saying in regard to such cases, 'it seems that in order that a recollection may organize and fix itself, a certain time is necessary which in consequence of the cerebral excitement does not suffice'; an illustrative case is noted in which an amnesia of three hours' duration resulted from the shock of being thrown from a bicycle. The time included the period of insensibility following the accident and about ten minutes immediately preceding it.

Ribot's remark furnishes the suggestion for an explanation of this phenomenon. The 'fixing of an impression depends upon a physiological process,' and it 'takes time to become fixed so that it can be reproduced after a long interval.' The process is not merely one of 'making a permanent impression upon the nerve cells, but also a process of association, of organization of the new impressions with old ones.' This process is continually going on until the shock comes and arrests it. The result is loss of memory for the period of insensibility, and also for such things as happened immediately preceding the shock, since they were not sufficiently organized to be permanent. "Great fatigue, excitement, unconsciousness and narcosis arrest in varying degrees this process of association."

A study of the amnesias attending epilepsy seems to confirm this result. These amnesias may be simple dissociations or they may be of retrograde and retroactive character. The memories of the time of the paroxysm, when reproduced, are reported as dreamlike, indefinite and incomplete; while those of periods a long time preceding, whenever recalled, are vivid, clear and definite. Still it is possible that some impressions be attended to very intensively during the paroxysm and so be capable of a vivid reproduction.

The author's 'tentative explanation' for the facts described is, on the whole, both clear and convincing, and one which will doubtless be accepted. Yet it is by no means unique except in its application to abnormal instances. The necessity of a period for 'organization' in order that the memory have permanence has been frequently demonstrated in recent experiments. In particular Lewy[1] has pointed out this fact, and Müller and Pilzecker[2] have made a complete demon-

[1] Lewy, 'Experimentelle Untersuchungen über das Gedächtnis,' *Zeitschrift für Psychologie*, Vol. VIII., 1895, pp. 248, 283.

[2] Müller und Pilzecker, 'Experimentelle Beiträge zur Lehre vom Gedächtnis,' *Zeitschrift für Psychologie*, Erg. Bd. I., 1900, 31.

stration of it with respect to the advantages for normal retention obtained by allowing a period of relaxation to follow every act of concentrated study. They also call attention to the presence of a 'rückwirkende Hemmung' in all mental processes. Furthermore Ebbinghaus[1] gives a careful discussion of these results in his *Psychologie* and draws from them the inevitable conclusions with regard to the evils of 'cramming.'

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*Dépersonnalisation et possession chez un psychasthénique.* F. RAYMOND and P. JANET. Journal de Psychologie normale et pathologique, Jan.–Feb., 1904.

A great number of maladies of personality have been described with accuracy, but though any two of them may be identical in appearance, their meaning is quite different according to the circumstances which governed them and the conditions under which they present themselves. Thus the case first cited might be provisionally described as a crisis of somnambulism. Gh——, a young man of twenty-nine, was found mimicking the actions of a young girl who, he claimed, had 'eclipsed' him; every action, gesture and bodily movement for certain intervals during eighteen months appeared as a sort of imitation of impressions he had received from watching those of the opposite sex.

The other case is that of a young woman subject to hysteria. Thus, attacked while near a cage of lions, she later developed a curious delirium, imitating the actions of lions in every respect, and even pretending to devour the photographs of children. During the crisis amnesia and anæsthesia were complete, and the malady was not recollected except in hypnotic sleep. This case here differs with the first. With Gh—— there was no anæsthesia either during the crisis or afterward, and so little loss of memory that he could give a full account of what passed during the metamorphosis. Indeed once he recollected having seen the head of a young girl in the mirror in place of his own, but generally the change would cease when he was interrupted. The metamorphosis was not an idea which developed completely and automatically like a suggestion or an hysterical dream; it was an idea which the subject always found in himself and developed of himself. The acts which he performed were almost voluntary; in brief, the singular change of a man into a woman was an obsession and not a true hallucination.

[1] Ebbinghaus, *Grundzüge der Psychologie*, Vol. I., 1902, pp. 651–3.

The psychological analysis of this case shows that the subject was an hereditary psychasthenic; his father died of general paralysis, his mother was neuropathic, a brother at times had a neural trouble resembling melancholia. Gh—— acted strangely when young, was savage and not amenable to control. He ran away at seventeen, and on returning from an expedition to South America lost all his activity and aptitude for useful work. He thought of all sorts of schemes without taking to one. He wrote: "Everything seems to pass at a great distance from me. * * * I am reached only by broken phrases and detached words. * * * I am several thoughts at once, everything passes through my head as in a cinematograph."

Unwillingness to work and act took a special form of social aboulia; his lack of social adaptation led him to wish to live in a desert island. Like Rousseau, the most illustrious of psychasthenics, he had the same complaints against society and the same cult of nature. His lowering of mental level was soon shown by its chief symptom, timidity, and the accompanying desire to associate only with persons of a lower class. Moreover, on his return to Paris he claimed to feel like a stranger, in fact practically expatriated. With this avoidance of persons of his own age and class is connected a second general symptom, the wish for direction, help and excitement. Like those timid souls who affect a hatred of society and a love of nature, he was in fact tormented with a fond desire for tenderness and affection. All this, it is claimed, led Gh—— to seek the society of women and yet actually to avoid their near presence. But he found the other sex, like society itself, too complex, hence, it is concluded, he brought about in himself a feminine metamorphosis and was thus affected with a feeling of losing himself, in fine, a complete depersonalization.

Meanwhile one is curious to hear more about the cure of this case of obsession in a psychasthenic, this feminized Frankenstein who described himself with the subtlety of Henry James.

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*La Sensation du 'déja vu.'* J. GRASSET. Journal de Psychologie, Jan.–Feb., 1904.

Grasset begins with a very complete description of the sensation of the 'already seen,' under which head he includes the 'already heard' and the 'already experienced.'

Two elements are equally essential to the phenomenon: 1. The *recognition* of an image, emotion or psychic state which one is conscious he has never experienced before. 2. Ignorance of the origin

of the first impression, which has been formerly acquired by the brain of the subject, and with which the present impression appears identical. The writer states the problem thus: Can a person unconsciously acquire psychic knowledge which he will be able to use later in different conscious intellectual operations (such as comparison or reasoning) without ever recalling the time or circumstances of the acquisition of this knowledge? This question is answered in the affirmative.

Instead of dividing the brain into three levels, Grasset divides it into two, following Pierre Janet. The superior centers (which he calls O) are conscious, and the inferior centers (les polygonaux) are unconscious or subconscious. These two levels work together inextricably under normal conditions, but in certain pathological, extra-physiological or even physiological conditions, they act independently. In this latter case, the inferior centers may acquire impressions, unknown to the superior centers. Later, the higher centers may discover these impressions and use them without knowing when or how they were acquired. This unconscious formation of concepts in the disconnected lower centers might be produced in either of two ways: (1) The lower centers have memory, and the concepts may be caused from outside stimuli; (2) The lower centers have imagination, and the concepts may be formed in the centers themselves without any outside cause.

As a case of *outer unconscious acquisition* Grasset cites the fact that during absence of mind one can acquire impressions which may be used later; and that in hypnosis a subject is given ideas of whose origin he remains in ignorance. *Inner unconscious acquisition* is brought about by the imagination of *les polygonaux* or lower centers; this imagination is displayed in the stories told by somnambulists and mediums. All these impressions of unconscious origin have as a common characteristic that the subject is ignorant of their entrance or production in his brain. They have a second characteristic, which is variable: (1) The impression thus acquired may remain entirely subconscious, then it is only found in another state of disunion of the brain levels, such as sleep or hypnosis. In this case, if the superior centers discover the impression, *it is not recognized.* (2) The impression, though subconscious in the origin, may penetrate into the general memory, and remain there latent, just as memories of conscious origin do. In this case, when any circumstance awakens the memory of this impression, the superior centers recognize it, but remain in ignorance of its origin. Then the subject experiences the astonishment and all the discomforts of the 'déja vu.' It is also claimed that the phenome-

non of the 'déja vu' is not of common occurrence; to realize it, the psychic centers of the subject must have a particular disposition, not morbid, but special.

A letter from Paul Bourget is given, in which he minutely describes his experience of the 'already heard' and 'experienced.' He had always attributed his habit of 'fausse reconnaissance,' to which he had been subject since childhood, to a simple nervous trouble, until Grasset's theory of the *O* and *les polygonaux* had given a psychological explanation. Bourget says further, that his mental discomfort caused by the characteristic 'anguish' of the 'already seen' became less as his mental powers matured. Grasset remarks that if we admit his theory Bourget's term 'fausse reconnaissance' is not correct, for the recognition is *real*, only the subject is ignorant of how or when he got the idea he recognizes.

Grasset criticizes some other theories concerning this phenomenon. The dream theory of Lapié and Méré and the idea of Thibault are most in accord with his own, indeed, they form part of his own.

He deduces a method of treatment for persons who have the 'already seen' habit. The subject must be taught to correct the impression of the 'déja vu,' as Bourget and Fernard Goegh have done. This treatment will not answer when the phenomenon goes beyond the psychological domain; in the case of somnambulists and mediums attention must be paid to the real nervous disease of which their habit is a manifestation.

To sum up, the 'already seen' is the reviving of an idea of subconscious origin, in the general or conscious memory.

The weak point in this clever explanation of an interesting phenomenon appears to be in attributing imagination and memory to the inferior or subconscious brain centers, if these include the lowest centers of vital activity. Furthermore, the whole article rests on an explanation which is too figurative.

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*Note sur une communication typtologique.* TH. FLOURNOY. Journal de Psychologie normale et psychologique, Jan.–Feb., 1904.

The author of *From India to the Planet Mars* here divides spiritualistic communications into three groups. The larger is of little scientific interest, consisting of simple scrawls or unpublished spellings, extremely tiresome to the impartial observer. Beside these twice told tales, these weak dilutions of hackneyed ideas, there is the second group of messages, the alleged veridical revelations attesting

supernormal powers (telepathy, clairvoyance, spirit intervention, etc.). There remains a third group which appears to have something in it in spite of manifest absurdities. For the psychologist an attentive examination of their contents and the circumstances of their production may lead to the discovery of obscure processes and laws of our nature of which they may be an index.

In the communication here presented a certain M. 'Bertin' received an imperfect message concerning the death of a cousin confined for twenty years in a distant lunatic asylum. The unfortunate inmate was being supported by his own fortune, a share of which would eventually become the possession of M. 'Bertin.' It was not unnatural that the legatee, under the circumstances, should at times wish for the death of his cousin. But, after the message, it was found that the demented man was still living.

Professor Flournoy interprets this communication as the manifestation of a dream of the subliminal consciousness, which had been created by a repressed desire in the direction noted above. The desire disguised itself in the simple idea of death: 'He is dead,' was all that the table could be got to say, and this message under the fiction of a spirit manifestation was but the accomplishment of a wish long suppressed as regards the normal consciousness. There is no need here of calling in the aid of telepathy, for by reason of a special automatograph it was discovered that M. 'Bertin' possessed an inherent tendency toward mediumship and that his unconscious muscular movements, acting through the medium of the séance, caused the table to deliver the mysterious communication. This explanation, it is asserted, agrees with the theory of Freud, that dreams are disguised realizations of repressed desires. Yet this theory does not cover all phenomena of this nature, for the writer cites one case where the fear of a certain event caused the dream of that particular event. In conclusion, says Professor Flournoy, it is probable that all our forms of emotion are capable of playing the same rôle and of figuring as the effective coefficient of these ideas which, submerged by the ordinary personality, become in the subconscious a germ of dreams and automatic phenomena.

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*An Attempt at Analysis of the Neurotic Constitution.* ADOLPH MEYER, M.D. Amer. Journal of Psychol., Vol. XIV., July–October, 1903; pp. 90–103.

Attempts at classification of the constitution are appearing in the form especially of two types of study: (1) That of individual psy-

chology, (2) types of functional efficiency or insufficiency. Paulhan in his *Les Caractères*, classifies types according to (1) the predominance of one special form of activity, *e. g.*, the inhibitory, reflective, etc.; (2) the definite qualities of tendencies of mind, *e. g.*, breadth of personality, etc.; (3) the predominance or absence of some tendencies, *e. g.*, social tendencies.

Dr. Meyer starts from the truism that 'a large number of those who become insane, are individuals in whom a turn to the worse could be anticipated.' The author reviews the various stages of development. Constitutional defects from infancy, as idiocy and imbecility, are very frequent and manifold. In the child also often occur imbecility and peculiarities. Puberty and adolescence are the decisive period for the formation of the make-up and for the cropping out of many defects. He contrasts the one-sidedly conscientious youth with the one who is distractible and without cohesive plans. He then attempts to discriminate certain types of constitution:

1. The psychasthenic. Includes obsessions, impulsions, manias, phobias, scruples, states of anxiety, etc.

2. The neurasthenic. "Reserved for the cases combining the symptoms of great exhaustibility and irritability, depending largely on the mental attitude of lack of repose and of ready recoverability, frequent head-pressure, palpitation and uneasiness of heart, gastric disorders, phosphaturia and oxaluria, and in men especially, often abnormality of sexual responsiveness."

3. Hypochondriasis. "Usually built on a feeling of ill-health which leads to self-observation and explanations."

4. The hysterical. Dr. Meyer is 'inclined to refer to hysteria all the mental and physical disorders which are produced from the effects of an emotion or idea which may work unconsciously to the patient.'

5. The epileptic. This 'manifests itself largely before or after the convulsions in signs which might be called part of the fit.' "In the intervals there is a certain irritability with occasional violent outbreaks regardless of consequences, or peculiar unwarranted sulkiness or periodic dipsomania. Later there is an increasing defect in mental capacity."

6. Certain types already akin to definite and mental derangements: (*a*) "The unresistive (responding easily to fever, to intoxication)." (*b*) the maniacal-depressive type and the constitutionally depressed, 'distinguished from the neurasthenic by the more direct feeling of insufficiency, not secondary to exhaustibility, and more likely to lead to suicide, and by the occurrence of periods of elation.' (*c*) The

paranoiac type, 'continually ready to see a meaning in things; suspicious, * * * with growing inclination to isolation.' (*d*) The deterioration type. "A deterioration, more and more marked by indifference in the emotional life and ambitions, and a peculiar fragmentary type of attention, with all the transitions to the apathetic state of terminal dementia."

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*The State of Death. An Instance of Internal Adaptation.* JAMES H. LEUBA. American Journal of Psychol., July–October, 1903, Commemorative Number, pp. 133–145.

The article discusses the doctrine of transformed personality, or internal adaptation, called by the Christian Mystics 'The State of Death.' In this state the soul is passive, is not moved by external forces, either good or evil, but is led inwardly, — is repose in God. It is the self-surrender doctrine of Christianity ideally carried out. "I live; yet not I, but Christ liveth in me." Psychologically, it is the gospel of relaxation applied to the moral life.

The soul comes to its mystical death through the disappearance of natural desires and impulses, not by fighting directly the natural man, 'for the lower desires seem to feed on the resistance offered them,' but by complete self-surrender into the hands of the Creator. This quietus to the natural man is not inertness and does not prevent the expression of God's will. While 'it induces internal peace, it gives a clearer perception of the Divine Will and a readier performance of it, since its antagonists have left the way clear.' "The significance of this ethical tendency is that it replaces individual by universal motives * * * it makes for action from universalized motives." The ideal is majestic: "A little creature comes to life with a pugnacious and even ferocious instinct of self-preservation and narrow self-increase at the expense of every one and every thing, entering upon a battle to the death with his original self to transcend it, and ultimately, on the ruins of his initial nature, in an amazing act of self-renunciation, making the General Will his own and thus becoming the moral equal of God."

The doctrine is significant as a factor in human development, for human progress is only a question of 'inner adaptation' through which the individual will becomes the Universal Will. "One may foresee the day when the triumph of the Universal Will in every human breast will have solved many of the difficulties now darkening the social horizon." While pleasure and happiness accompany the state,

it by no means follows that they are ends to be sought. "There is no bargaining with hedonic values."

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*The Status of the Subconscious.* JOSEPH JASTROW. Amer. Journal of Psychol., Commemorative Number, July–October, 1903, p. 79.

In this paper Professor Jastrow sets forth in a suggestive way two allied views. On the one hand, he urges that hypotheses formulated to explain abnormal psychic phenomena 'should be broad enough to include both the normal and the abnormal phases of mental action' (p. 88). This sound doctrine is based on the fact that "intermediate between these extreme examples of the abnormal and the commonplace incidents of the life of the subconscious, are many forms of manifestation forming a bridge from the one to the other. Dreaming," Dr. Jastrow adds, with great perfect justice, "is in itself a sufficiently versatile process to manifest them all." The study, from this point of view, of the abnormal, 'in no wise,' according to Dr. Jastrow, sanctions 'the hypothesis of an independent subconscious organization' (p. 86).

None the less, Dr. Jastrow teaches, 'subconscious activities' do constitute a part of the material of psychology. For this view he argues, *first*, by pointing out that there is no break in the continuity of the intensity-series of physical stimuli, although the low intensities are not perceptible whereas the higher intensities are perceived; *second*, by emphasizing (p. 85) the presence of 'marginal' as well as 'focal elements of consciousness.' The writer of this notice misses, in Jastrow's discussion, a definite distinction between consciousness and subconsciousness. In particular he does not make clear the relation between (1) that form of subconsciousness which is presupposed by the continuity of the physical intensities and (2) that form of subconsciousness which is involved in 'marginal' consciousness. 'The subconscious' in the latter sense seems to be nothing more nor less than 'the unattended-to'; whereas 'the subconscious' in the former sense may surely be a physiological process — at least such an account of it is not disproved. In the fuller treatment of the whole subject, promised by Professor Jastrow, one may look for a discussion of this point.

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## NORMAL ILLUSIONS.

*Normal Illusions in Representative Geometrical Forms.* MABEL CLARE WILLIAMS. Univ. of Iowa Stud. in Psych., 1902, III., 38–139.

This article is a coping stone to the investigations on normal illusions latterly conducted at Iowa. It distinguishes and measures the effects of the visual illusions of length, of the vertical, of cylinder length, area and volume; all or some of which frequently coöperate to produce the mental misjudgment, though counteracted by the Müller-Lyer effect in certain forms. The research is based on ten fundamental forms of lustreless black tin, some of which appear in combined forms; on outline forms on black cardboard; and on familiar extra-laboratory objects. The author studied different methods (selection, production, primary position of regard, sidewise and downward regard); different distances; different dimensions of lines and squares; different classes of observers (the two sexes, youths, adults); different conditions, grades of intelligence, naïve and practice estimations, etc. The matter is arranged chronologically in eleven series, not logically under a minimum of captions. In the present case there seem good reasons for adopting this plan: the results are amenable to genetic interpretation; they can be employed for mutual corroboration, and the tabular records allow of a higher degree of completeness. A final exhaustive table of summaries is reproduced, and, in general, the tables are so complete that they may be used by other investigators. Numerous summaries are introduced with good effect.

Some of the important conclusions arrived at by the author are as follows: area, volume, cylinder length and 'length' illusions (sometimes merely associational) exist independently of, and often in greater intensity than, the well-known illusion of the vertical, and are usually in the nature of overestimations; the illusion of the vertical is strongest for the line; lines (or areas) occurring in a series of lines (or areas) are underestimated; the verticality of an area appears higher than that of a line; the horizontal direction of cubes and plates appears relatively bigger than the vertical, with respect to compared lines and plates; the illusions persist in merely representative objects, affect objects of different kinds, forms, sizes, complexity and remoteness, and are undimmed by practice.

In the final table the results are in terms of the horizontal line; the isolated-line criterion seems preferable to the plate, used in the early part to evaluate the cylinder length illusion: it represents the minimum of sensation stuff, with some element common to all forms;

and it embodies the highest simplicity of illusion motive, viz., only the illusion of the vertical with the maximum of illusion effect.

Dr. Williams inclines toward a physiological theory in explanation, but does not indicate stages and factors or otherwise elaborate it.

The suggestion occurs that the volume illusion here discovered may furnish one motive by virtue of which planospectives appear enlarged when seen perspectively in stereoscopic projection. The monograph is careful and exhaustive, and the author has succeeded in unearthing new illusions of sight.

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## ASSOCIATION.

*L'Association médiate.* H. PIÉRON. Revue Philosophique, 1903, XXVIII., pp. 142–149.

M. Piéron calls attention to the fact that all experimental investigators, save Scripture, deny the existence of mediate association, whereas Aschaffenburg, Féré and Claparède, on the ground of introspection or of statistical observation, admit its occurrence. He proceeds to comment upon the explanations offered of mediate association: Hamilton's illustration by the row of balls is a mere analogy, and Wundt's appeal to indistinct consciousness is a mere transposition of the problem. Piéron believes that both difficulties, that of establishing and that of explaining mediate association, are due to the inadequacy of the ordinary view of association as 'a unilinear chain of terms,' and to the effort to explain it by the mechanical 'law of contiguity.' As a matter of fact, he insists, (p. 145) association is merely 'a particular case of the general law of states of consciousness, and this is a law of synthetic affinity.' The law governing the occurrence of particular associations is that of their interest for the self. In mediate associations, Piéron believes, the suppressed terms are hidden in the subconscious depths of spirit (*les dessous subconscients de l'esprit*), and call up ideas which appear in consciousness because they have for the self an interest superior to that of the evoking ideas. The reason why the experimenters have failed in their efforts to excite mediate associations is then simply this: the merely contiguous images which they seek to arouse have little significance for the self, and are not evoked by the subconscious ideas.

In all this, there seems to the present writer to be little of importance. The view of unilinear association, which Piéron rightly opposes, is not held by psychologists to-day; the principle of contiguity,

as at present interpreted, has reference not to accidentally contiguous objects, but to contiguous — that is, continuous — states of consciousness; and the law of interest is recognized by everybody as determining particular cases of association. Piéron's conception of the mediately associated images as aroused by subconscious ideas, must be supplemented by a far sharper definition of subconsciousness if it is to have positive value.

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*The Proof and Measurement of Association between Two Things.* C. SPEARMAN. Amer. Journal of Psychology, XV., 72–101, January, 1904.

The article consists of a description and a discussion of the comparative value of divers methods of measuring and representing the correlation of any two properties, *e. g.*, the efficiency of instruction by writing and by word of mouth, or two different mental abilities, or others. Its general tendency is the same as that of Thorndike's Educational Psychology, of which it may be regarded as a supplement, going within its scope farther into detail. The author shows that psychological measurements made without knowledge and use of scientific methods of calculating the correlation of different abilities are often either entirely lost labor which does not benefit any one, or yield results of such slight accuracy as not nearly to compensate for the amount of labor expended. The discussion of the methods is confined to the needs of practical workers, and all theoretical mathematical demonstrations of the formulæ whose use is recommended are omitted. For more detailed exemplification the author refers to a further publication on 'General Intelligence' which is to appear subsequently. The first part of the article describes the methods of computing correlations, the second part the methods of correcting systematic deviations which cannot be eliminated by a mere prolongation of the series, but only by variation of the method of obtaining the data. Finally, the number of cases desirable for an experiment is discussed and shown to be often quite small if the proper method of calculation is selected.

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## TIME.

*A Theory of Time-Perception.* W. P. MONTAGUE. Am. Jour. of Psychology, XV., 1–14.

In this paper a theory of the relation of subjective change to objective change based on the James doctrine of the relation of sub-

jective and objective in consciousness is put forth as an explanation of the 'specious present,' of the estimation of the rate of temporal sequence, and of recognition.

Perceptual time is assumed to be the change occurring in the objective aspect of consciousness, *i. e.*, the incoming content, and is measured by the simultaneous change occuring in the subjective aspect, or apperceiving content. The objective change, $\Delta O$, during any period is assumed to be greater than the subjective change, $\Delta S$, during the same period; hence the apparent length of the interval, measured by $\Delta O/\Delta S$, will approach the finite value $do/ds > 1$ as $\Delta t$ becomes infinitely small. Hence at any point in the metaphysical time series there will appear to be present a finite quantity of perceptual time; *i. e.*, there will be a 'specious present.'

The alternate expansion and contraction of the specious present, measured by the fluctuating values of $do/ds$, give to consciousness its rhythmic character, and 'objects or events which occupy the expanding specious present are felt as enduring, while those which fill the contracting specious present are felt as passing or succeeding.' The rate, measured by $d_2o/ds_2$, of the change in value of the specious present, determines the apparent rapidity of the passage of time; hence frequent distractions, which cause the specious present to be more rapidly 'built and destroyed,' increase the apparent rapidity.

If $\Delta S$ is assumed to be always less than $\Delta O$, it will follow that in general the change in the apperceiving mass will be inversely proportional to its size; hence the more states there are held in consciousness the greater the value of $do/ds$, and consequently the farther back the date of the state of earliest origin. In the case of an event which has lapsed from consciousness and afterwards recurred, there is the revival, in schematic form, of the intervening occurrences, which furnishes a large apperception mass, and pushes the recalled event far back in the system of dates. Moreover, the event is measured not only against this large apperception mass, but also against the smaller mass of states which have not yet lapsed from their first appearance in consciousness; and it is this duality of measurement which occasions the conscious 'againness' of the remembered event. When the 'schematic' filling between the present and previous occurrences of the state is too vague to serve as a definite apperception mass, there is merely the feeling of 'familiarity,' instead of memory.

In spite of the dependence of the statement of this theory of time perception upon a rather artificial view of consciousness, it brings out and together in definite form certain points towards which psychology

nas been tending, so that it may safely be said to mark a new stage in the analysis of time. The conception of time as change, of the specious present as the relation of old content to new, and of recognition as the resultant of a two-fold specious present, put certain difficult and tedious portions of the road finally behind us.

It cannot be said however, that the mathematical solution is final, even apart from the identification of the subject with a portion of the objective contents. $\Delta S$ is less than $\Delta O$ only if we consider merely the change in the apperceiving mass caused directly by the incoming content, and not necessarily then, since an incoming content with a small change factor may cause a large change in the apperceiving mass. In fact the assumption holds true only if no change whatsoever occurs in the apperceiving mass except in so far as it may 'absorb' change from the new factor; just as if the old content were so many quarts of clear water and the new a gill of ink, in which case the resultant hue of the mixture would be lighter than that of the ink. Perhaps Dr. Montague does not intend this part of his theory to be taken in this highly artificial way, but it seems to lend itself to no other interpretation.

Furthermore, the mathematical ratio does not after all provide for duration. For the specious present so derived is only a mathematical ratio, and it is impossible to speak of 'objects or events occupying it.' The events can 'occupy' only one term of the ratio, namely, $\Delta O$; and as $\Delta O$ becomes infinitesimal, the portion of the event also becomes infinitesimal; so that the apparent duration in any specious present could not be the duration of any finite event, however small, but only of an infinitesimal part of event.

*Ueber die zeitlichen Eigenschaften der Sinneswahrnehmung.* Robert Müller. Vierteljahrschr. f. wiss. Philos. u. Soziol., XXVII., 39–56.

In this article the author concerns himself with the grounds of the analysis of perception. He states with much detail the fact that any perception whatever necessitates the activity of some part of the central nervous system, which, together with the peripheral organ and neural connections is denominated the 'sense substance.' He insists on the distinction between the perception-expression which has reference to the experiencing 'subject' (*relative*), and that which has no such reference (*positive*), physical method being based on the latter, and 'subjective' method on the former.

The distinction between physical and psychical, the author says,

is just that between positive and relative expression, and having insisted on the invariable nexus of psychical and physiological, it is plain to him that psychology can be nothing but physiology from the point of view of 'subjective' method. Any thing else which attempts to pass as psychology is really the result of confusion of an 'impossible method with content' and rests on 'divers mythical poetical concepts.'

The author frankly distrusts 'metaphysics, so that the crude metaphysical confusions on which he founds his doctrine need not surprise us. He attempts to take a concept derived by means of the metaphysical distinction between positive and relative, and substitute it for the concept of psychical experience from which it was derived. Fortunately psychology has passed the stage in which it is in danger of falling into such pits.

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## HEARING.

*Beitrag zur Resonanztheorie der Tonempfindungen.* S. EXNER and J. POLLAK. Zeitschrift f. Psychol. u. Physiol. d. Sinn., 1903, XXXII., 305–332.

The authors begin their article with the statement that the resonance theory of hearing has ceased to be the generally accepted theory, but that their own interest in this theory justifies their further investigation of some partially known phenomena of hearing. Their intention is to produce by various means more or less frequent changes of phase in a vibration of constant pitch and to observe the sensations resulting therefrom. The change of phase is produced in three different ways. (1) By means of rotation of an electromagnetic tuning fork the tone of which was observed through a long tube. (2) By means of a telephone whose circuit was conducted through a rotating commutator. (3) By attaching two resonators to a tuning fork in such a manner as to produce resonance of opposite phase and observing the tones through a long tube and rotary double valve alternately connecting with each of the resonators. Similar experiments on tones of alternating phase had been made by other investigators previously. The authors arrive at the following result. (1) Alternation of phase produces a sensation similar to beats. (2) The intensity of this sensation is less than that of a sensation produced by a vibration of unalterable phase. (3) If the alternation of phase occurs very frequently, the intensity of the tone becomes considerably weakened. (4) If the alternation of phase occurs after each ten (or less) vibrations,

the tone may become so weakened as to become inaudible among the accompanying noises.

Of this result the authors say that it agrees with the resonance theory, but that its agreement with any other theory of hearing is yet to be found. This treatment of the matter seems to the reviewer as little impartial as a similar recent statement of Hensen, who concluded that there must be resonators in the ear since he had proved a rise in intensity in the beginning of a sensation of tone. A similar rise in brightness has been found in the beginning of a visual sensation; but no one has drawn the conclusion that there must be resonators in the eye. The reviewer has tried to discover any disagreement of the interesting results of Exner and Pollak with other theories; *e. g.*, the theory of hearing developed by himself. But he has not found any. Should therefore this experimental investigation be called a contribution to the resonance theory of hearing?

*The Expression of Emotions in Music.* A. GEHRING. Philos. Review, 1903, XII., 412–429.

The author gives a brief exposition of the different theories concerning 'expression' in music, without saying anything that is new to the reader familiar with the literature of the subject. The extreme formalists deny the possibility of expressing anything through music, regarding the whole æsthetic effect as caused by form; the extreme expressionists, on the contrary, regard the expression as the chief source of the æsthetic effect of music, attributing to form a subordinate place. The author points out that the possibility of expression is limited (to a rather imperfect imitation of the sounds of nature), but that 'expression' is an important factor in musical æsthetics if we mean by it that music 'impresses' us with emotions, the general nature of which is common to all mankind, the particular elements of which depend, however, not so much on the music as on the subjective conditions of the hearer.

*Ueber die Unterschiedsempfindlichkeit für gleichzeitige Töne.* K. L. SCHÄFER and A. GUTTMANN. Zeitschrift f. Psychol. u. Physiol. d. Sinn., 1903, XXXII., 87–97.

The authors determined the difference of vibration rate of two simultaneous tones heard by the same ear, which enables the hearer to distinguish the two tones. Four classes of judgments were recorded: beginning impurity, distinct impurity, beginning duality, distinct

duality. The tones were produced partly by tuning forks, partly by reeds, but for the most part by means of Stern's tone variator. The result was in general that the discrimination of simultaneous tones follows the same laws as the discrimination of successive tones, *i. e.*, it is nearly constant in the middle region, but becomes more difficult in the extreme regions of auditory sensation. Absolutely, however, the discrimination of simultaneous tones was found to be much more difficult than that of successive tones, at least ten vibrations being necessary for certainty of distinction.

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## CONTRAST.

*Der Simultane Farben- und Helligkeitskontrast, mit besonderer Berücksichtigung des sog. Florkontrast.* JOHANNES KÖHLER. Archiv f. d. gesamte Psychologie, II., 423.

This research, made in the Leipzig laboratory, has for its outcome a confirmation of Wundt's present views on the subject of contrast, namely, that psychological and physiological factors coöperate in the production of the contrast effect. The two chief problems investigated were those principally involved in the *Florkontrast* seen in Meyer's experiment: the effect of eliminating contours and that of diminishing the saturation of the inducing color.

Preliminary experiments were made with paper painted in colored stripes of various degrees of saturation, the intermediate stripes being painted gray of corresponding brightness. Convex lenses were used to diminish the sharpness of the boundary lines. The general results of these observations were that lessened sharpness of contour increases the intensity of the contrast effect; that weakly saturated colors produce intenser contrast effects than strongly saturated ones, and that the inducing power of the 'exciting' colors, red to green, is less than that of the 'depressing' ones, green to violet. The following observation is interesting as bearing on the influence of psychic factors: Suppose a gray stripe on a colored background, tinted all over by contrast with the complementary color. If two black lines be drawn on this gray stripe parallel to its borders and about 2 cm. inside of them, the contrast effect will not appear between the lines. If the lines be inclined somewhat, the contrast color will follow their edges exactly. What would seem a less ambiguous indication of a psychological factor, since the black lines might disturb the physiological conditions, is the fact that if a negative after-image of moderate intensity be projected on a gray field where there has been drawn a polygon of considerably

greater area, the contrast color surrounding the after-image will spread itself to fill out exactly the space enclosed by the polygon.

Quantitative experiments were made by the following methods: For brightness contrast, rotating black and white disks were used, the observer varying the brightness of another disk by means of a Marbe rotation apparatus until it looked equal to the brightness induced by contrast. A similar procedure was followed with transmitted light and episkotisters. For color contrast, pigments washed on by the experimenter and gelatine disks were employed. In one set of experiments the reacting field was a gray made up of black and white sectors, with inner and outer rings of the inducing color. The black and white sectors could be moved so that the inducing color showed through, and the intensity of the contrast effect was measured by the amount of this background needed to restore the neutrality of the gray. In another set the inducing color lay towards the outside only, and a comparison disk of gray was used. The gray and that of the reacting field were made by mixing the inducing color with its complementary. The observer was required to make the comparison disk like the reacting gray by adding more of the complementary to the inducing color. As before, spectacles with convex lens were used to eliminate contours.

The results showed, first, that the effect of diminishing the sharpness of contours is always to increase the intensity of the contrast. Secondly, although the preliminary experiments gave stronger contrasts with less saturated colors, the general tendency betrayed in the quantitative experiments was for the contrast effect to increase with the saturation of the inducing color. This is the old contradiction between Meyer's experiment and the quantitative work of Kirschmann and Ebbinghaus. However, when the inducing color lay on both sides of the reacting gray, the increase of contrast effect with saturation was not a constant but a gradually diminishing proportion; that is, the weakly saturated colors gave a relatively great contrast effect, the highly saturated colors a relatively small effect. A parallel fact appears from the brightness experiments, where the effect of slight differences in brightness between inducing and reacting fields was relatively great.

From these results the author concludes the presence of psychological influences along with the physiological ones. The increase of contrast with the saturation of the inducing color is due to the fact that contrast is a physiological process. Our estimate of the intensity of the contrast effect is, however, like every estimate of intensity, affected by the psychic law of relativity. The saturation of the con-

trast color is measured to a certain extent in terms of the saturation of the inducing color, especially where the reacting field is completely surrounded as in Meyer's experiment. Hence, when the inducing color is only slightly saturated the contrast effect looks to us stronger, though based on a weaker physiological process; when the inducing color is saturated, the contrast effect is underestimated by comparison. This conclusion is borne out by the fact that in the quantitative experiments, when the inducing color lay only on the outside of the reacting surface and a comparison disk was used, the contrast effect increased steadily with the saturation.

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## DISCUSSION.

### REACTION-TIME AND VARIABILITY: A CRITICISM.

In the May number of the PSYCHOLOGICAL REVIEW William R. Wright published a paper on 'The Relation between the Vaso-Motor Waves and Reaction Times,' in which he presented reaction-time results which indicate certain important relations between the vaso-motor wave and the time of reaction. The author gives in his report of experiments only the averages of his reaction-time series: in no case is variability mentioned. In view of the obvious importance of the variableness of reaction-time in our interpretation of the significance of such results as are offered in this paper, it is surprising that the author should not have given, at least, the mean variability of each series.

I have recently called attention to the necessity for the determination of variability and probable errors in all reaction-time work,[1] and I refer to the matter again in this connection only because reports are continually appearing whose value is greatly diminished by the neglect of this matter. It is needless to say that a difference in reaction-times, which under certain conditions may be significant, under slightly different conditions may justify no conclusion beyond that of variability. In other words, unless our results show differences which exceed the variability or probable error of the average reaction-times we are not justified in basing conclusions upon such differences. It is true that the results of the paper in question are so constant in their indication of a certain relationship that the author may have thought

[1] Yerkes, Robert M.; 'Variability of Reaction-Time,' PSYCHOLOGICAL BULLETIN, Vol. I., pp., 137–146, 1904.

it useless to bother with other statistical data than the average reaction-times; but even granting this, there can be no doubt that the meaning of the results and their value for future investigators would have been made clearer by the determination of some statistical measure of their variableness.

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## CORRECTION.

The review of Professor Royce's article on pp. 320–324 of the August BULLETIN was written by Miss Angie L. Kellogg, of Vassar College, and should have been so signed. We regret the error.

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## BOOKS RECEIVED FROM AUGUST 7 TO SEPTEMBER 7.

*The Decline of Land-owning Farmers in England.* HENRY CHARLES TAYLOR, Ph.D. Bull. of the Univ. of Wisconsin. Madison, Wis., 1904. Pp. 66.

*Condorcet, Guide de la Revolution française.* FRANCK ALENGRY. Paris, Giard et Brière, 1904. Pp. 889.

*Interrogative Thought and the Means of its Expression.* EDWARD T. OWEN, Ph.D. From Trans. of the Wisc. Acad. of Sciences, Arts and Letters, Vol. XIV.

*Kants Revolutionsprinzip (Kopernikanisches Prinzip).* ERNST MARCUS. Herford, W. Menckhoff, 1902. Pp. xii + 181.

*A Treatise on Cosmology.* HERBERT NICHOLS. Vol. I., *Introduction.* Cambridge, Mass., The Author, 1904. Pp. 454.

*Wissenschaft und Weltanschauung.* MAX WERWORN. Leipzig, Barth, 1904. Pp. 48.

*Einführung in die Psychologie.* ALEX. PFÄNDER. Leipzig, Barth, 1904. Pp. vii + 423. M. 6.

*Evolution of Theology in the Greek Philosophers.* ED. CAIRD. 2 vols. Glasgow, Maclehose, 1904. Vol. i, pp. xvii + 372. Vol. ii, xi + 377.

*Unterrichtspraxis für das Gesammtgebiet des ersten Schuljahrs.* L. F. GÖBELBECKER. Wiesbaden, Nemnich, 1904. Pp. ix + 459.

*Proceedings of the Aristotelian Society.* New Series, Vol. IV. London, Williams & Norgate, 1904. 10/6. Pp. 170.

*Technique de psychologie expérimentale.* TOULOUSE, N. VASCHIDE, H. PIÉRON. Paris, Doin, 1904. Bibl. de Psych. Expér. Pp. 330.

*La contagion mentale.* A. VIGOUROUX et R. TUQUELIER. Paris, Doin, 1905. Bibl. de Psych. Expér. Pp. 258.

*Das Kind in Haus, Schule und Welt.* L. F. GÖBELBECKER. 2d ed. Wiesbaden, Nemnich, 1904. Pp. 144. M. 1.75.

*Juicio critico sobre la accion pauliana en el Derecho Romano.* O. RODRIGUEZ, B. Maracaibo, Rubio, 1901. Pp. 469.

*The Widow's Mite and other Psychological Phenomena.* I. K. FUNK. New York, Funk & Wagnalls, 1904. Pp. xiv + 538. $2 net.

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## NOTES AND NEWS.

CH. SIGWART, emeritus professor since 1903, and long professor of philosophy, in the University of Tübingen, died on August 6.

IN the list of speakers and chairmen at the St. Louis Congress of Arts and Science, published in our last number, the names belonging to the Section of Metaphysics were erroneously credited to the Department of Philosophy. The chairman for this department is Professor Robert P. Bowne (Boston University), and the speakers are Professors George T. Ladd (Yale University) and George H. Howison (University of California).

THE Second International Congress of Philosophy was held at Geneva, September 4 to 8. Professor Millioud, of the University of Lausanne, was president of the Section on General Philosophy and Psychology, with M. Kozlowski, privat-docent at the University of Geneva, as vice-president.

THE following items are gathered from the press:

REV. J. D. STOOPS has accepted a call to the chair of philosophy at Grinnell College, Iowa.

J. BURT MINER, Ph. D. (Columbia), has been appointed instructor in philosophy in the University of Iowa.

BURTIS BURR BREESE, Ph. D. (Columbia), now of the University of Tennessee, has been appointed professor of psychology at the University of Cincinnati.

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